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First Named Inventor:	SOLYNTJES, ALAN J.		
Application No.:	10/750077	Confirmation No.:	2080
Filed:	December 31, 2003	Group Art Unit	3743
Title:	PERSONAL RESPIRATORY PROTECTION DEVICE THAT HAS A PERMANENT OR SEMI-PERMANENT BAYONET CONNECTION		

BRIEF ON APPEAL

Mail Stop: Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an appeal from the Office Action mailed on August 24, 2006.

A Notice of Appeal in this application was filed by EFS-Web submission on September 29, 2006.

☐ Please charge the fee provided in 37 CFR § 41.20(b)(2) to Deposit Account No. 13-3723. One copy of this sheet marked duplicate is also enclosed.

☒ Any required fee will be paid at the time of EFS-Web submission.

☒ If necessary, charge any required fee, or credit any overpayment to Deposit Account No. 13-3723.

REAL PARTY IN INTEREST

The real party in interest is 3M Company (formerly known as Minnesota Mining and Manufacturing Company) of St. Paul, Minnesota and its affiliate 3M Innovative Properties Company of St. Paul, Minnesota.

RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals or interferences.

STATUS OF CLAIMS

Claims 1-27 are pending in this application. Claims 1-4, 7, 8, 10-14, 16-18, 20, 22-25, and 27 have been rejected, and claims 5-6, 9, 15, 19, 21, and 26 have been indicated to be allowable if written in independent form.

STATUS OF AMENDMENTS

No amendments have been filed after the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

The claims at issue concern a personal respiratory protection device that has an attachment system that inhibits inadvertent removal of an engaged bayonet-style component. The personal respiratory protection device may be, for example, a respirator that has attached filter cartridges.

Respirators and other types of respiratory protection equipment have been used to protect wearers from breathing airborne contaminants such as suspended particulates, toxic fumes, organic vapors, biological hazards, and the like. Many types of respiratory equipment are known for providing clean air to the wearer. This equipment may include full face respirators, half mask respirators, supplied air hoods, powered air purifying respirators (PAPRs), and self contained breathing apparatus (SCBA), including full containment suits. The particular equipment selected for use may vary with the ambient environment, the contaminant to be removed, and the amount of contaminant desired to be removed.

A common personal respiratory protection device is known as a "respirator", which may be furnished to the user in either a half-face or full-face configuration. A half-face or half-mask respirator fits over a person's nose and mouth, whereas, a full-face respirator also covers the eyes.

Incoming air is commonly passed through a filter, typically either a single filter, centrally located at the front of the mask, or a dual filter that is located at each side in the cheek area. The filter(s) may be, for example, a cartridge that contains activated carbon to remove organic vapors from the air, a non-woven filter that has electrically-charged fibers to remove particulate material, or a combination of the two. The filter cartridges are commonly removable and replaceable from the mask body.

Known mask bodies have fittings for receiving the filter cartridge(s). The fittings and cartridges sometimes have complementary mating threads that permit the filter cartridge to be screwed or threaded into position. When these replaceable filter cartridges are secured to the mask, however, opportunities exist for air leakage to occur if the cartridge is improperly cross-threaded or is not screwed on sufficiently tight.

Filter cartridges also have been attached to a face mask using a "bayonet" system. A bayonet system also uses rotation to mount the cartridge but typically does not employ threads and does not need multiple turns to secure the cartridge to the mask body. In a bayonet system, a quick rotational turn, for example, a 45 to 90 degree turn, can attach the cartridge to the mask. Sometimes the bayonet cartridge is oblong in shape to aid in seating and turning, but circular cartridges also have been used. A plurality of tabs, typically three, are present on the outer surface of the cheek fitting, each of which corresponds to a notch, or tab receptacle, formed in the bayonet cartridge. When the tabs are aligned with the notches, the cartridge can be positioned in place and rotated for attachment. The tabs and corresponding tab receptacles are typically designed to allow only one orientation of the cartridge on the mask body. The bayonet cartridges are very popular with respirator wearers because the cartridges can be easily removed and replaced with a simple twist. Commercial products that use a bayonet system for securing filter cartridges include the 6000 Series™ and 7000 Series™ respirators sold by the 3M Company of St. Paul, Minnesota.

A bayonet-type system is also described in U.S. Patents 4,850,346 (Michel et al.) and 4,934,361 (Michel et al.). These patents describe the use of such a system to attach filter cartridges to an inhalation valve fitting on a respiratory mask. To connect the filtration cartridges to the inhalation valve fittings, an audible detent means is used to indicate when each cartridge is properly secured to the respiratory fitting. As the parts are rotated relative to each other, deflections of a rib and lug occur until the rib abruptly drops off the end of a cam, producing an

audible click. The cam and rib yieldably hold the cartridge in position so that the cartridge cannot be uncoupled unless a positive and deliberate torque is applied.

Occasions may arise, however, where a positive torque could be inadvertently applied to a cartridge on a mask. The cartridge could bump or rub against an adjacent object when the wearer moves, causing the cartridge to twist and become loosened from the facepiece. In some applications, where tight quarters or other personal protective equipment is present, a system to permanently lock the cartridges in place may be desirable. When the wearer is working in a very hazardous environment, opportunities for inadvertent cartridge loosening must be avoided. Applicants' invention addresses a security feature that enables the wearer to be confident that the bayonet connection has been seated correctly and that the connection cannot be inadvertently loosened.

The present invention provides a personal respiratory protection device that comprises:

(a) a mask body that is adapted to fit at least over a person's nose and mouth;

(b) at least one fluid communication component located in fluid communication with the mask body so that a non-contaminated source of oxygen can be supplied to a wearer of the personal respiratory protection device;

(c) at least one non-contaminated breathing gas supply source component; and

(d) at least one bayonet attachment system that enables the breathing gas supply source component to be fluidically communicatively secured to the fluid communication component. The bayonet attachment system comprises a first portion and a second portion, wherein when the first portion is attached to the second portion a connection is created that is incapable of being inadvertently separated. The term "incapable of being inadvertently separated" has been defined by applicants to mean that the first and second portions are permanently joined or can be only separated through use of a key that unlocks the first and second portions without breaking or destroying either portion or a part that is used to provide a connection between such portions, which connection is only non-destroyingly separable by the key thereof.

The present invention provides a security feature for coupling personal respiratory protection device components that utilize a bayonet-style attachment system. The security feature inhibits accidental disengagement of the bayonet connection. The connection cannot be loosened or unlocked without destructive breaking of a portion of the bayonet attachment system

or without use of a key. The connection therefore cannot be inadvertently disengaged or unlocked through accidental positive torque. Once disengaged, the bayonet connection is disabled and inhibits future connections unless a semi-permanent connection is provided, whereby a separate key or tool is needed to intentionally disengage the securing feature. The inventive bayonet attachment system thus provides a more secure coupling of personal respiratory components so that the positive disengagement cannot inadvertently happen. Additionally, sabotage or misuse of spent or contaminated components can be avoided. The invention also may allow for improved workplace management of the respiratory equipment.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

First Ground of Rejection

Claims 1-4, 7,8, 10-14, 16-18, 20, 22-25, and 27 have been rejected under 35 USC § 102(b) for being anticipated by U.S. Patent 4,934,361 to Michel et al. (Michel).

Second Ground of Rejection

Claims 4, 7-13, and 22-27 have been rejected under 35 USC § 103(a) for claiming subject matter that would have been obvious in view of the teachings of Michel.

ARGUMENT

First Ground of Rejection

Michel discloses a respirator 10 that has filter cartridges 11 attached to it. The filter cartridges are attached through use of a fitting 12. The cartridges are provided with three equiangularly-spaced lugs 56, 65 that extend radially inward from a sidewall 60 of the cartridge base. A cam 68 is provided on the lugs such that there is deflection of the rib 62 and lug until the rib abruptly drops off the end of the cam. This abrupt action causes the relatively flexible resilient material of the cam in the rib to produce an audible click, which indicates to the user that the cartridge is properly coupled to the fitting. The cam and rib thereafter yieldably hold the cartridge in position so that the cartridge cannot be uncoupled unless a positive and deliberate torque is applied.

As the Board is aware, a reference anticipates a claim only when it discloses each and every feature set forth in the claim. Applicants personal respiratory protection device requires that the first and second portions of the bayonet attachment system be "incapable of being inadvertently

separated." As stated above, applicants have defined this term to mean that the "first and second portions are permanently joined or can be only separated through use of a key that unlocks the first and second portions without breaking or destroying either portion or a part that is used to provide a connection between such portions, which connection is only non-destroyingly separable by the key thereof." Michel does not disclose a personal respiratory protection device that meets this definition. The Board's attention is directed to Michel particularly at column 6, lines 54-65. There Michel states that the cartridge is held in position "unless a positive and deliberate torque is applied." This statement indicates that the cartridge can be removed through rotational movement. Accordingly, Michel does not disclose a filter cartridge that is permanently joined to the mask body or that can only be separated through use of a key. Michel's filter cartridge can be removed by a positive and deliberate torque. Lacking any disclosure of a permanently joined filer cartridge, Michel would not have anticipated applicants' invention under the terms of 35 USC § 102(b).

Second Ground of Rejection

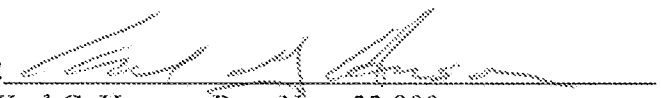
Applicants' claimed subject matter also would not have been obvious to a person of ordinary skill for the reasons presented above. Michel contains no teaching or suggestion of applicants' bayonet attachment system or the benefits that it provides to a respiratory protection device. Michel does not suggest a permanent connection or one that can only be separated through use of a key. Nor does Michel provide an enabling teaching of how to construct such an attachment. Michel only discloses a conventional bayonet system where filter cartridges are attached to and removed from a mask body by rotational movement. As such, Michel would not have rendered applicants' invention obvious to a person of ordinary skill within the meaning of 35 USC § 103.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application under 35 USC § 102 and § 103. Please reverse the decision below.

Respectfully submitted,

November 29, 2006
Date

By: 
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CLAIMS APPENDIX

1. A personal respiratory protection device that comprises:

(a) a mask body that is adapted to fit at least over a person's nose and mouth;

(b) at least one fluid communication component located in fluid communication with the mask body so that a non-contaminated source of oxygen can be supplied to a wearer of the personal respiratory protection device;

(c) at least one non-contaminated breathing gas supply source component; and

(d) at least one bayonet attachment system that enables the breathing gas supply source component to be fluidically communicatively secured to the fluid communication component, the bayonet attachment system comprising a first portion and a second portion, wherein when the first portion is attached to the second portion ~~with~~ a connection is created that is incapable of being inadvertently separated.[1]

2. The personal respiratory protection device of claim 1 being a respiratory mask that has at least one filter cartridge as the at least one non-contaminated breathing gas supply source component.

3. The respiratory mask of claim 2, wherein the first portion of the bayonet attachment system comprises a tab receptacle and a tab void area, and wherein the second portion comprises a tab extending therefrom, the tab having a size no greater than the tab void area and no greater than the tab receptacle, wherein when the first portion is attached to the second portion to cause the tab to seat within the tab receptacle, a connection is formed that is incapable of being inadvertently removed.

4. The respiratory mask of claim 2, wherein the connection is permanent.

5. The respiratory mask of claim 2, wherein the connection can only be unlocked with a key.

[1] Applicants ask that the Board read the claim with the noted changes. The Examiner has applicants' approval to make these corrections now or after the decision on appeal by an Examiner's Amendment.

6. The personal respiratory protection device of claim 1, wherein the bayonet attachment system further comprises a third part, wherein disengagement of the first portion from the second portion requires breaking the first portion, the second portion, the third part, and any part or combination thereof.

7. The personal respiratory protection device of claim 1, wherein the bayonet attachment system comprises a locking device that is integral with the first portion, the second portion, or a combination thereof.

8. The personal respiratory protection device of claim 1, wherein the bayonet attachment system comprises a locking device that is integrated into the first portion, the second portion, or a combination thereof.

9. The personal respiratory protection device of claim 1, wherein the connection can be separated through use of a key.

10. The personal respiratory protection device of claim 1, being a powered air-purifying respirator.

11. The personal respiratory protection device of claim 1, being a self-contained breathing apparatus.

12. The personal respiratory protection device of claim 1, being a full-face respirator.

13. The personal respiratory protection device of claim 1, being a supplied air hood.

14. The personal respiratory protection device of claim 1:

wherein the first portion further comprises a ramp portion; and

wherein the tab receptacle of the first portion is defined by a first wall and an opposite second wall, the first wall defined by the ramp portion.

15. The personal respiratory protection of claim 4, wherein the ramp portion comprises a spring mechanism and a first end, the first end defining the first wall of the tab receptacle.

16. The personal respiratory protection device of claim 5, wherein the ramp portion further comprises a second end opposite the first end, and wherein the ramp portion is attached to the inner surface at the second end.

17. The personal respiratory protection device of claim 1, wherein:

(a) the first portion has an aperture therethrough, and

(b) the second portion comprises a body having an aperture therethrough, the body configured for attachment to the first portion such that the first portion aperture aligns with the body aperture.

18. The personal respiratory protection device of claim 1, wherein:

(a) the first portion further comprises a second tab receptacle, a second ramp portion, and a second tab void portion; and

(b) the second portion further comprises a second tab extending from the body outer surface.

19. The personal respiratory protection device of claim 18, wherein the first portion further comprises a third tab receptacle, a third ramp portion, and a third tab void portion; and wherein the second portion further comprises a third tab extending from the body outer surface.

20. A personal respiratory protection device that has a bayonet attachment system, the bayonet attachment system comprising a first portion and a second portion, wherein:

(a) the first portion comprises a tab receptacle and a tab void area; and

(b) the second portion comprises a tab extending therefrom, the tab having a size no greater than the tab void area and no greater than the tab receptacle;

wherein when the first portion is attached to the second portion to cause the tab to seat within the tab receptacle, a connection is formed that is incapable of being inadvertently removed.

21. The personal respiratory protection device of claim 1, wherein the connection can only be unlocked with a key.

22. The personal respiratory protection device of claim 1, wherein the connection is permanent.

23. A method of making a personal respiratory protection device, which method comprises:

(a) providing at least one fluid communication component;

(b) providing at least one non-contaminated breathing gas supply source component;

(c) providing at least one bayonet attachment system that comprises a first portion and a second portion; and

(d) joining the first portion to the second portion to form a connection that is incapable of being inadvertently removed.

24. The method of claim 23, wherein the at least one fluid communication component comprises at least one fitting disposed on a mask body, and the at least one breathing gas supply source component comprises at least one filter cartridge.

25. A method of making a personal respiratory protection device, comprising:

(a) providing a first portion of a bayonet attachment system comprising a tab receptacle and a tab void area;

(b) providing a second portion of a bayonet attachment system comprising a tab extending therefrom, the tab having a size no greater than the tab void area and no greater than the tab receptacle; wherein when the first portion is attached to the second portion to cause the tab to seat within the tab receptacle, a permanent connection is formed,

(c) locking the first portion of the bayonet system with the second portion of the bayonet system by:

(i) passing the tab through the tab void area;

(ii) rotating the first portion in relation to the second portion; and

(iii) seating the tab within the tab receptacle.

26. A method of un-making a personal respiratory protection device, comprising the steps of claims 25 and further comprising:

(d) unlocking the first portion of the bayonet system from the second portion by using a key.

27. A method of un-making a personal respiratory protection device, comprising the steps of claims 25 and further comprising:

(d) removing the first portion of the bayonet system from the second portion by destroying at least one of the first portion and the second portion.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.